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WEINHARDT, R. ART UNIT PAPER NUMBER

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DATE MAILED:

01/19/95

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

This application has been examined Responsive to communication filed on _____ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. Notice of References Cited by Examiner, PTO-892.
2. Notice of Draftsman's Patent Drawing Review, PTO-948.
3. Notice of Art Cited by Applicant, PTO-1449. (3)
4. Notice of Informal Patent Application, PTO-152.
5. Information on How to Effect Drawing Changes, PTO-1474.
6. _____

Part II SUMMARY OF ACTION

1. Claims 1 - 15 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. Claims _____ have been cancelled.

3. Claims _____ are allowed.

4. Claims 1 - 15 are rejected.

5. Claims _____ are objected to.

6. Claims _____ are subject to restriction or election requirement.

7. This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. Formal drawings are required in response to this Office action.

9. The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are acceptable; not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been approved by the examiner; disapproved by the examiner (see explanation).

11. The proposed drawing correction, filed _____, has been approved; disapproved (see explanation).

12. Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has been received not been received been filed in parent application, serial no. _____; filed on _____.

13. Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. Other

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Art Unit: 2311

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

2. The Abstract of the Disclosure is objected to because of its comparison with the prior art and discussion of purported merits. Correction is required. See M.P.E.P. § 608.01(b).

Applicant is reminded of the proper content of an Abstract of the Disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains.

If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure.

If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement.

In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof.

If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following: (1) if a machine or apparatus, its organization and operation; (2) if an article, its method of making; (3) if a chemical compound, its identity and use; (4) if a mixture, its ingredients; (5) if a process, the steps. Extensive mechanical and design details of apparatus should not be given.

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3. Claims 3-5, 7-8 and 10-15 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is not clear in that it is not positively established that the second performance of step (a) makes use of the augmented lexical knowledge base. As a result, it is not clear what steps support the desired result of enhancing the second performance.

In claim 4, it is not clear what ensures that performing step (b) a second time yields different semantic relations. Are different predetermined sets used or are the different sets the result of the augmented knowledge base?

In claim 5, the use of the negative limitation is vague since it describes what the second set is not rather than what it is.

In claim 7, it is not clear if the extracted semantic relation structure is the same as or different from the semantic relation structure identified in claim 6 from which claim 7 depends.

Claim 10 is confusing in that it is not clear how the steps therein are integrated with the steps of claim 6 from which claim 10 depends.

In claims 11 and 14, as in claim 3, it is not clear what ensures the recited desired result.

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In claim 12, as in claim 4, it is not clear what ensures different semantic relation structures.

In claim 13, as in claim 5, the negative limitation is considered vague.

Claim 14 recites a single step method which, like single means claims, are vague and indefinite in that they cover any and every method, including those beyond the scope of the disclosure, for performing the desired result .

Dependent claims not specifically mentioned above are rejected because by their dependence they include the language of a rejected claim.

4. 35 U.S.C. § 101 reads as follows:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title".

5. Claims 1-15 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter, namely a mental process.

The underlying principle of a mental process rejection is that thought is not patentable because it is the type of process which already resides within the human facilities. See *In re Abrams*, 188 Fed. 2d 165, 168. The prohibition on patenting mental processes was based on the premise that a "mental process" was not the kind of process that the Patent Office and the courts had traditionally conferred patent

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protection. In *Cochrane v. Deener*, 94 US 780, 788 the Supreme Court formulated its definition of patentable "process" by stating that "the steps of an art...must be performed upon physical materials and produce some change in their character or condition". This transformation requirement necessarily excluded process steps that substantially constituted mental computation as the patentable feature because mental steps, by definition, resided within the human mind and could not meet *Cochrane's* definition of a patentable process that transformed something.

Cases since *Cochrane* have affirmed the Court's position on not conferring patentability on inventions reciting mental steps. In *In re Heritage*, 150 Fed. 2d 554, the CCPA held that the step of mentally computing the selection process of coating material was "merely functional" and did not "limit the application" of the invention. More recently, *Gottschalk v. Benson*, 175 USPQ 673, 675 expressly stated in the opinion that "phenomena of nature, though just discovered, mental processes, abstract intellectual concepts are not patentable...". Thus, claims reciting an invention directed to mental steps are not patentable.

Further, much like the prohibition against patenting mathematical algorithms, the courts have held that mere field of use limitations cannot make a claim statutory. See *Diamond v. Diehr*, 209 USPQ 1,10. Nor, according to the *Diehr* court, would a non-statutory claim be rendered statutory by simply adding insignificant post-solution activity to the end of the claim.

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That claims 6 and 9-15 are drawn to a mental process is clear from the lack of positively identified structure for performing any of the recited steps. In other words, it is clear that no steps of the claimed method are positively implemented by a machine and thus, no steps are necessarily performed on physical materials to produce a change in their character or condition. The entire method can be performed by hand, whether aided by pen and paper or by their modern equivalent, the computer, to merely record or file the mental processes of the user performing the method or to assist the user in looking up information for the mental process. While these claims include the recitation of a "lexical knowledge base", this merely identifies a repository and implies a use for the collected information.

Concerning claims 1-5 and 7-8, while these claims specifically recite a parser, this is seen as the necessary antecedent to the extracting and inverting steps which are not positively associated with any structure. In other words, the parser, part of applicant's admitted prior art, fulfills a "data gathering" function for the mental process of extracting and inverting, which does not convert the mental process into statutory subject matter.

6. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the

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subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

7. Claims 1-15 are rejected under 35 U.S.C. § 103 as being unpatentable over applicant's admitted prior art in view of the Lenat et al. book, "Building Large Knowledge-Based Systems" as far as the claims are definite in light of the 35 USC 112 issues raised above.

Applicant's admitted prior art teach the parsing and extraction of semantic relation structures including a headword, a relation and a value from dictionaries and their storage in association with the headword for use as a knowledge base for natural language processing. Note page 2, lines 9+, and page 10, lines 8+, of the instant specification. Applicant's admitted prior art fails to specifically teach the inversion of

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the semantic relation structure and its storage in association with the value. However, Lenat et al. specifically teach that, in the construction of a knowledge base, inverses to the entered relationships are automatically formed and stored in association with the "value" of the relation. Lenat also specifically teaches that this provides an accessing advantage when using the knowledge base and provides the possible introduction of additional inferences. See section 3.3.1 on pages 83-84 of Lenat. Thus, it would have been obvious to those of ordinary skill in the art to modify the teachings of the admitted prior art to include the generation of inversions for the accessing advantage taught by Lenat.

Concerning the recited repetition of the method, presumably with the augmented knowledge base, Lenat specifically teaches, as mentioned above, that the inversion might cause other inferences. This indicates that the knowledge base has been expanded as a result of the inversion. Thus, it would have been obvious to those of ordinary skill in the art to repeat the processing of the original text for the obvious benefit of the efficient use of resources resulting from the extraction of any additional useful information from the text due to the development of an expanded knowledge base. With respect to the recited extraction of different sets of semantic relations, since the first pass of the method already stores any found relations and their inverses, it would have been obvious to those of ordinary skill in the art that the

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relations already found do not need to be extracted and processed again in order to obviously save computational time and expense.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Oyanagi et al. teach a semantic network machine including "is-a" attributes. Ausborn teach a method and apparatus for abstracting concepts from natural language.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Weinhardt whose telephone number is (703) 305-9780. The examiner can normally be reached on Monday-Friday from 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gail Hayes, can be reached on (703) 305-9711. Facsimile transmissions to this Group may be directed to (703) 305-9564 or 9565.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3800.

December 30, 1994


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PRIMARY EXAMINER
GROUP 2300